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TITLE : CIRCUIT BOARD

ABSTRACT : PROBLEM TO BE SOLVED: To enhance durability against heat cycle by setting the shortest interval between metal circuits, between bonding layers and between a metal circuit and a bonding layer within a specified range and setting the insulation resistance at 150°C in the shortest interval at a specified value or above.

SOLUTION: The circuit board comprises a metal circuit and a ceramic board bonded through a bonding layer containing an active metal. The shortest interval (c) between metal circuits, between bonding layers and between a metal circuit and a bonding layer is set within a range of 0.5-1.0 mm. Insulation resistance decreases when the shortest interval (c) is shorter than 0.5 mm and a fine pattern can not be obtained when it exceeds 1.0 mm. Furthermore, the insulation resistance at 150°C in the shortest interval (c) is $1 \times 10^{11} \Omega \cdot \text{cm}$ or above. If the insulation resistance is lower than that value, dielectric breakdown takes place when a current of 0.5 mA flows at 5.0 kV.

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